IN THE CLAIMS

Please cancel Claims 58-60 without prejudice.

Please add Claims 61-70 as follows:

--61. (New) A process for crystal growth in which a single crystal is grown while solidifying a melted crystal material, using a heat gradient within a temperature range including a melting point of a crystal material to be grown, the process comprising the steps of:

detecting an amount of latent heat generated with solidification of the melted crystal material; and

controlling a growth rate of crystal based on the amount of latent heat detected.

62. (New) The process according to claim 61, wherein the amount of latent heat is detected by calculating a detection result obtained by a temperature detecting means provided in a furnace.

63. (New) The process according to claim 62, wherein the amount of latent heat is calculated based on a difference between an indicated value of the temperature detecting means when crystal growth is not effected and an indicated value of the temperature detecting means when crystal growth is effected.

64. (New) The process according to claim 61, the crystal growth rate is controlled by changing a movement rate to relatively move crystal grown and the temperature gradient.

65. (New) The process according to claim 61, wherein the controlling step is effected such that a ratio of the amount of latent heat calculated to an area of interface between the melted crystal material and the crystal grown is made almost constant.

66. (New) The process according to claim 61, wherein the controlling step is effected such that a ratio of the amount of latent heat calculated to a cross sectional area of the crystal grown is made almost constant.

67. (New) A process for crystal growth by using a crystal growth apparatus comprising a crucible for holding a crystal material, a heating means which is capable of forming at the periphery of the crucible a temperature gradient within a temperature range including a melting point of the crystal material, a moving means which is capable of moving the crucible relatively to the temperature gradient, and a temperature detecting means for detecting a latent heat generated with solidification, the process comprising the steps of:

detecting an amount of the latent heat by calculating from a detection result of the temperature detecting means; and

moving the moving means such that a ratio of the amount of latent heat detected to an area of interface between the melted crystal material and the crystal grown is made almost constant.

68. (New) A process for crystal growth by using a crystal growth apparatus comprising a crucible for holding a crystal material, a heating means which is capable of forming at the periphery of the crucible a temperature gradient within a temperature range including a melting point of the crystal material, a supporting means for supporting a center bottom of the crucible, a cooling means provided at the supporting means, and a temperature detecting means for detecting a temperature distribution within a plane of cross section of the crucible, the process comprising the steps of:

detecting the temperature distribution within a plane of cross section of the crucible; and

controlling the heating means and the cooling means such that in the detected temperature distribution within a plane of a cross section of the crucible, temperature almost at a center portion of the crucible is minimized in the cross section.

69. (New) The process according to claim 68, wherein cooling by the cooling means is effected by adjusting a flow rate of cooling medium flowed into the cooling means.

70. (New) The process according to claim 68, wherein the temperature detecting means is a plurality of thermocouples provided in cross section of the crucible.- -